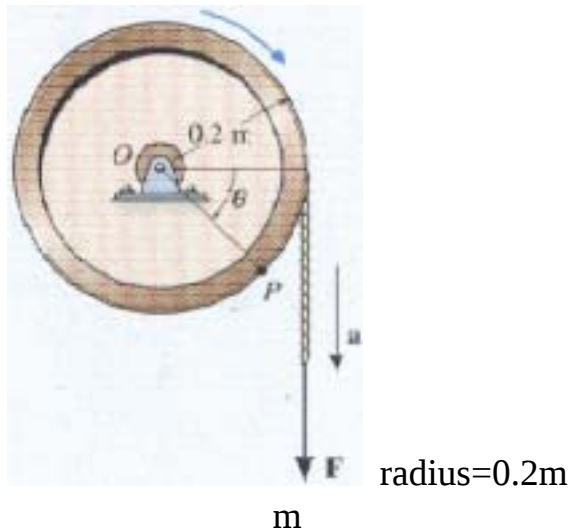


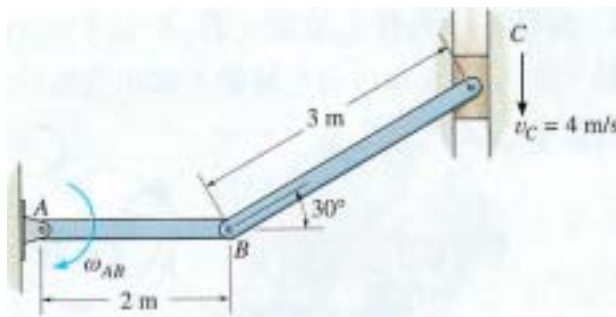
國立屏東科技大學 九十四 學年度 碩士班暨碩士在職專班招生考試
動力學 試題

注意	須仔細列出各式計算過程，且取小數點兩位
-----------	---------------------

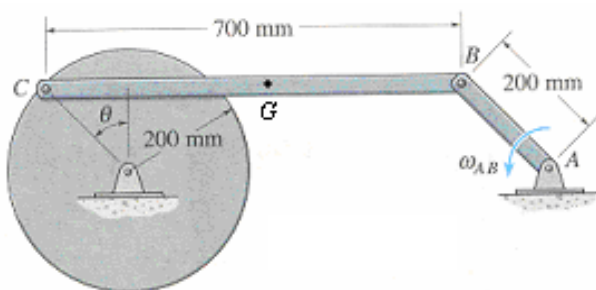
1. A cord is wrapped around a wheel (radius=0.2 m) that is initially at rest as shown. If a force is applied to the cord and gives it an acceleration $a = (4t) \text{ m/s}^2$, where t is in seconds, determine as a function of time (a) the angular velocity of the wheel, and (b) the angular position of line OP in radians. (25%)



2. If the block at C is moving at 4 m/s, determine the angular velocity of bar AB at the instant shown. (25%)



3. The uniform connecting rod BC (length=700 mm) has a mass of 3 kg and is pin-connected at its end points. Determine the vertical forces that the pins exert on the ends B and C of the rod at the instant $\theta = 0^\circ$. The crank AB is turning with a constant angular velocity $\omega_{AB} = 5 \text{ rad/s}$. (25%)



動力學 試題

4. The 10-kg rod AB is pin-connected at A and subjected to a couple moment of $M = 15 \text{ N}\cdot\text{m}$. If the rod is released from rest when the spring is un-stretched at $\theta = 30^\circ$, determine the rod's angular velocity at the instant $\theta = 60^\circ$. As the rod rotates, the spring always remains horizontal, because of the roller support at C.

(25%)

